

Remarks/Arguments

Claims 3 and 10-17 are rejected under 35 U.S.C §112, second paragraph, as being indefinite. Particularly, the Examiner has alleged that the term "'circumferentially' is unclear as to whether it means the VOC is disposed face-to-face in circumferential contact in any shap[e] with the HEPA filter, or is disposed in circular concentric with the HEPA filter." Applicants' submit that "circumferentially" is not indefinite. "Circumferentially" is defined as "so as to surround or encircle" (www.dictionary.com). In addition, the adjective "circumferential" is defined as "of, at, or close to the circumference" (Webster's Unabridged Dictionary, 2nd Ed. 1983). With these definitions in hand, Applicants submit that the phrase "disposed circumferentially about", in light of Applicants' specification (pg. 13, lines 12-21) and Figs. 4 and 5, therefore, simply means that one filter is positioned peripherally around the other filter. The phrase encompasses filters having various shapes, such as circular or square and, therefore, the terms "concentric" or "circular" as suggested by the Examiner are unnecessarily limiting.

In addition, the Examiner has alleged that "VOC" is an unidentified acronym. "VOC" is defined in Applicants' specification, in the Background section on page 3, lines 14-15, and is, therefore, definite.

Claims 1-17 are pending and stand rejected under 35 U.S.C. §103(a) as being unpatentable over prior art references cited by the Examiner. Applicants respectfully disagree and submit that the claims are patentable in light of the arguments presented below.

General Arguments

Applicants' claimed inventions involve use of VOC and HEPA filters in an incubator to purify the air inside the incubator. However, none of the references cited by the Examiner, either alone or in combination, teach use of a VOC filter in an incubator. While Hugh teaches the benefits of including a HEPA filter in an incubator, Nagafune, Kudirka, and Hunter simply do not teach or suggest the use of a chemical filter to remove chemicals from the air in an incubator environment. Accordingly, one of ordinary skill in the art would not be motivated to combine the teachings of Hugh with any of Nagafune, Kudirka, or Hunter to render Applicants' claimed invention obvious. Moreover, even if the references were somehow combined by one of ordinary skill in the incubator art, which Applicants submit is unlikely, the combination would fail to teach Applicants' claimed relationship between the filters and the blower. For at least these reasons, which will be discussed in greater detail below, Applicants submit that the claimed inventions are not obvious and the Examiner's rejections should be withdrawn.

Claim Rejections Under 35 U.S.C. §103

Claims 1-17 are rejected under 35 U.S.C. §103(a) as being obvious over Hugh, in view of any one of Nagafune, Kudirka, and Hunter. The Examiner argues that Hugh discloses all claimed subject matter except for "a VOC filter removably attached to the inlet of the blower." The Examiner relies on any one of Nagafune, Kudirka, and Hunter to disclose "a chemical filter attached to the blower." Specifically, the Examiner states:

"Nagafune et al disclose a chemical filter and an HEPA filter attached to the fan of a clean dry air generating apparatus and the chemical filter removes chemical mists

and foreign materials of few microns level through the chemical filter. Kudirka et al disclose a first carbon filter and the second carbon filter and an HEPA filter mounted on the blower of a room air treatment system. Both first and second chemical carbon filters remove chemical fumes or impurities which give rise to unpleasant odors. Kudirka et al further disclose the chemical filter comprising of activated carbon. Hunter et al disclose a tubular filter cartridge which has layers of granular sorbent bed and the typical sorbents can be activated carbon, molecular sieves, activated alumina, soda lime or silica gel. The sorbent material is packed in a tube of metal or plastics material closed at the lower end by an end cap and at the upper end by a disc. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to adopt a chemical filter as taught by any one of Nagafune et al, Kudirka et al and Hunter et al in the incubator of Hugh since the chemical filter would effectively removes any undesirable chemical vapors, odors and smells from the air circulation of the incubator."

There is simply no suggestion or motivation in any of Nagafune, Kudirka, and Hunter to combine the reference with Hugh to render Applicants' claimed invention obvious. Applicants' claimed invention is directed to inclusion of a VOC filter in an incubator to provide a controlled atmosphere for a variety of research applications. While Hugh teaches use a HEPA filter inside an incubator, none of Nagafune, Kudirka, and Hunter teach or suggest the need to purify air in an incubator environment, or position a chemical filter in an incubator. More particularly, Nagafune discloses an apparatus for generating chemical-free dry air. The apparatus, including a chemical filter, is designed "for supplying dr[y], chemical-free air to outside of the chamber" (col. 1, line 62-63) and, more specifically, "for prevention of chemical pollution in manufacturing, for example, semiconductor devices" (col. 1, lines 6-8). A semi-conductor manufacturing

environment laden with chemical pollution, as taught by Nagafune, is generally a huge, spacious facility and hardly suggests Hugh's smaller, milder incubator environment, used to grow biological cultures. It is clear that Nagafune never even contemplated use of the apparatus in an incubator environment, let alone be placed in an incubator. This is further evident from the fact that Nagafune's apparatus generates dry air, while Hugh's incubator is fitted with a water jacket to produce humid or moist air in the incubator. With such different utilities, one of ordinary skill in the art would not be motivated to combine Nagafune with Hugh.

Similarly, there is no suggestion or motivation in either of Kudirka or Hugh to combine these references. Kudirka discloses a room air treatment system in which air is drawn through a large particle pre-filter 10, a first carbon filter 20, a second carbon filter 30, and into a blower 40. The air discharged from the blower passes through a fine particle HEPA filter 70 and exits through a final filter 80, which is a combination fine particle filter and carbon filter. However, Kudirka's system "relates to room air treatment", and is not intended to purify air in an incubator environment, or for use in an incubator. This is evident as Kudirka's complicated multi-filter, multi-component air treatment system would not be effectively utilized, from a cost and space standpoint, in an incubator. Thus, without further teaching or the benefit of improper hindsight in view of Applicants' own disclosure, one of ordinary skill in the art would not be motivated to combine these references.

Likewise, there is no suggestion or motivation in either of Hunter or Hugh to combine the two references. Hunter discloses cannister-type cartridge filters, and only filters, for use with pressurized or compressed air and, in particular,

for use where the compressed air expands to atmospheric pressure, such as "in relation to exhaust ports of control valves and driven motors" (col. 1, lines 46-56).

Hunter does not disclose, however, any accompanying chambers, such as an incubator, to be used in conjunction with the filter. In contrast, the air in Hugh's incubator environment circulates at atmospheric pressure or slightly higher.

Further, Hunter fails to teach or suggest how the cartridge filter may be adapted for use in Hugh's incubator. Accordingly, while Hunter's filters are capable of removing vapors, odors and smells from air, Hunter fails to teach or suggest any attachment of such filters to an incubator, let alone position the filter inside an incubator. Thus, without further teaching, and without the benefit of improper hindsight of Applicants' own disclosure, one of ordinary skill in the art would not be motivated to combine Hunter with Hugh.

However, even if combined, the independent combinations of Nagafune, Kudirka, and Hunter, with Hugh, would not suggest Applicants' claimed arrangement of the VOC filter, and HEPA filter where claimed, and the blower. Applicants' independent claim 1 recites, among other elements, "a VOC filter removably attached to the inlet of said blower", and independent claim 10 calls for "a HEPA filter removably mounte[d] in said air flow path to filter air flowing to said blower; and a VOC filte[r] coupled to said HEPA filter." Accordingly, in both independent claims, Applicants position the filters before the blower.

In contrast, Nagafune's apparatus draws air through a primary filter 1 (not taught to be a chemical filter) into a fan 3, and expels the air from fan 3 through a chemical filter 4, and finally through a HEPA filter 5 for channeling into an air-drying unit (Fig. 1, nos. 3, 4, 5, col. 2, lines 23-36 and lines 56-61). Thus,

Nagafune's chemical filter 4, and HEPA filter 5, are positioned after the fan, and not before, as called for in Applicants' independent claims 1 and 10. Further, Nagafune's disclosure fails to suggest positioning filters 4 and 5 before fan 3 to allow chemical-free air to pass through fan 3. In fact, Nagafune teaches that positioning the chemical filter after the fan "allow[s] the air to pass through the chemical filter 4 at a velocity of about 1 m/s to maintain the absorbing efficiency of the chemical mists" (col. 3, lines 9-11), thereby teaching away from Applicants' claimed arrangement. Accordingly, the combination of Hugh and Nagafune would only suggest placing the chemical filter and the HEPA filter after the blower, or placing the chemical filter after the blower and the HEPA filter before the blower. Neither of these orientations disclose placing the chemical filter before the blower, as called for in Applicants' claims. Moreover, with the latter arrangement, the chemical filter cannot be "coupled" to the HEPA filter. Thus, the combination of Hugh and Nagafune would not have rendered Applicants' independent claim 1 and dependent claims 2-9, and independent claim 10 and dependent claims 2-9 and 11-17, obvious to one of ordinary skill in the art.

Similarly, in Kudirka's room air treatment system, the first carbon filter 20 and second carbon filter 30 are positioned before blower 40, but not "removably attached to the inlet" of blower 40 (Fig. 2). Instead, they are confined in recessed ledge 115, of cabinet 100, which is clearly detached from blower 40 and separated therefrom by cavity 103. Recessed ledge 115, designed to seal filters 20 and 30, therefore, teaches away from attachment to the blower. Accordingly, Kudirka fails to disclose Applicants' feature of a VOC filter "attached to the inlet of said blower" and, therefore, the combination of Hugh and Kudirka

would not have rendered Applicants' independent claim 1 and depending claims 2-9 obvious to one of ordinary skill in the art.

Further, Kudirka intentionally positions the HEPA filter 70 after the blower. "Blower assembly 40 is located upstream of HEPA filter 70 so that any carbon particles which may be carried from carbon filters 20 and 30 are trapped in HEPA filter 70" (col. 5, lines 12-15). Moreover, Kudirka limits the blower and filter order by stating "the foregoing filters and blower assembly are arranged in cabinet 100 in the order indicated (Fig. 2)" (col. 6, lines 9-10). In contrast, Hugh positions the HEPA filter before the blower. Thus, Kudirka teaches away from Hugh and, on this basis, one of ordinary skill in the art would not be motivated to combine Kudirka and Hugh. Even if combined, however, the combination would fail to teach, suggest or motivate a VOC filter and a HEPA filter positioned "to filter air traveling to said blower" and, therefore, would not have rendered Applicants' independent claim 10 and dependent claims 11-17 obvious to one of ordinary skill in the art.

Likewise, Hunter's vapor, odor, and smell removing filter is neither "attached to the inlet of said blower" nor "coupled to a HEPA filter." As previously discussed, Hunter fails to teach or suggest any location of the filter with respect to a blower. Accordingly, a combination of Hunter and Hugh, if combined, would not suggest, to one of ordinary skill in the art, positioning an odor-removing filter before a blower, as called for in Applicants' independent claims 1 and 10. Therefore, the combination of Hunter and Hugh would not have render Applicants' independent

claims 1 and 10 and dependent claims 2-9 and 11-17 obvious to one of ordinary skill in the art.

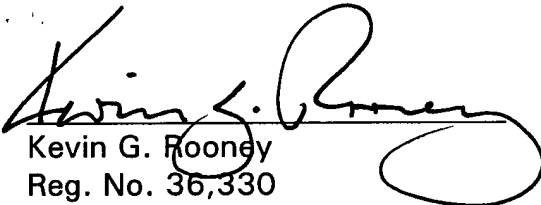
Conclusion

For at the foregoing reasons, Applicants submit that claims 1-17 are patentable. If there is any additional matter outstanding which a telephone conference may assist with, the Examiner is invited to call Applicants' undersigned counsel to resolve the same.

Applicants do not believe that any fees are due in connection with this response other than the extension fee. However, if such petition is due or any other fees are necessary, the commissioner may consider this to be a request for such and charge any necessary fees to deposit account 23-3000.

Respectfully submitted,

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